INTERNATIONAL JOURNAL OF APPLIED BIOLOGY AND PHARMACEUTICAL TECHNOLOGY

www.ijabpt.com Volume-5, Issue-2, April-June-2014 Coden : IJABPT Copyrights@2014

ISSN : 0976-4550

Received: 11th Nov-2013 *Revised: 19th Jan-2014* *Accepted: 22nd Jan-2014*

Research article

NEW RECORDS OF OCTOCORALLIA (ORDER: PENNATULACEA) FROM INDIAN WATERS

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ABSTRACT: Present paper dealt with three species viz. *Virgularia gustaviana*, *Virgularia mirabilis* and *Cavernularia pusilla* under the order Pennatulacea reported from Andaman and Nicobar Islands are described and illustrated. They are new distributional recorded to Indian waters.

Key words: *Pennatulacea*, *Virgularia*, *Cavernularia*, Octocorallia, Andaman and Nicobar Islands

INTRODUCTION

The pennatulaceans, commonly known as sea pens and sea pansies, are a highly specialized and distinct group of sessile benthic coelenterates. They are distributed throughout the world's oceans from the polar seas to the tropics, and at all depths from the intertidal zone to over 6200 meters (Kukenthal & Broch, 1911; Kukenthal, 1915; Williams, 1995). The ability to inhabit soft substrata has allowed several abyssal-dwelling sea pens to have a nearly cosmopolitan distribution. Despite these widespread geographic ranges, pennatulacean species diversity in the deep-sea is relatively low, and may be attributed to a combination of factors including: relatively low energy input and productivity in the abyssal environment, coupled with a relative lack of ecological diversity (Birkeland, 1974; Langton *et al*., 1990; Rice *et al*., 1992). Thirty-two genera in fifteen families of living pennatulaceans are currently recognized. Of the 436 nominal species names described in literature, approximately one half are currently considered valid. Major monographic works on the Pennatulacea include Kukenthal (1915), and Williams (1990, 1995).

The objective of this research correspondence is to report an exceptional abundant occurrence of the poorly known pennatulaceans, off the Andaman and Nicobar Islands, India.

MATERIAL AND METHODS

Samples for this study were collected by SCUBA diving from 15 m to 25 m depth, during 2009 to 2011 at Mahatma Gandhi Marine National Park, South Andaman and Kamorta Island, Nicobar. Pennatulacean samples were collected, labeled and fixed on board in 4% buffered formalin in sea water and subsequently preserved in 70% alcohol. Underwater photographs were made with a Sony – T900 digital camera and the morphology of the collected samples were examined with the help of a (Leica –DFC 500) compound microscope.

Systematic Account

Phylum : Cnidaria (Hatschek, 1888)
Class : Anthozoa (Ehrenberg, 1831)
Order : Pennatulacea (Verrill, 1865)
Family : Virgulariidae (Verrill, 1868)
Genus : *Virgularia* (Lamarck, 1816)
Species : *gustaviana*; *mirabilis*

Virgularia gustaviana (Herklots, 1863)

Material Examined: ZSI/ANRC: 5574, Live colony height: 3 cm; width: 0.915mm; Depth: 15 meter; Grub Island (N $11^0$35.406, E $092^0$35.713) Mahatma Gandhi Marine National Park, South Andaman; Reef slope with turbid water.

Description: Colony white in colour when alive and preserved (Figure-1). Average size of the colony is 3 to 4 cm and very slender colonies. The average size of the polyp is 0.56 mm and it was capable of luminescence in darkness. The central stem was only a 0.3mm thick.

Habitat: Lives embedded in sandy bottom, into which it can withdraw. Occurs in sheltered localities in depths greater than about 5m.
Distribution: South Africa to Indonesia; Japan; China.

Virgularia mirabilis (Muller, 1776)

Material Examined: ZSI/ANRC: 5575, Live colony height: 500 mm; width: 2 mm; Depth: 22 meter; Kamorta Island (N08˚02.328, E 093˚31.783), Nicobar group; clay sandy with high turbid water.
Description: Forms elongated, very slender colonies with narrow leaves and bears polyps. Colour is yellowish or whitish; capable of luminescence in darkness. Up to 500 mm long with central stem, is 2 mm thick and in this species it is round in section and often protrudes from the top of the colony (Figure-2).
Habitat: Mostly lives in muddy sand, into which it can withdraw. Occurs in sheltered localities in depths greater than about 5m.
Distribution: All coasts of Britain and Ireland, locally abundant. Generally distributed around Western Europe and in the North Atlantic, also in the Mediterranean.
Family : Veretillidae (Herklots, 1858)
Genus : *Cavernularia* (Milne-Edwards & Haime, 1850)
Species : *pusilla*

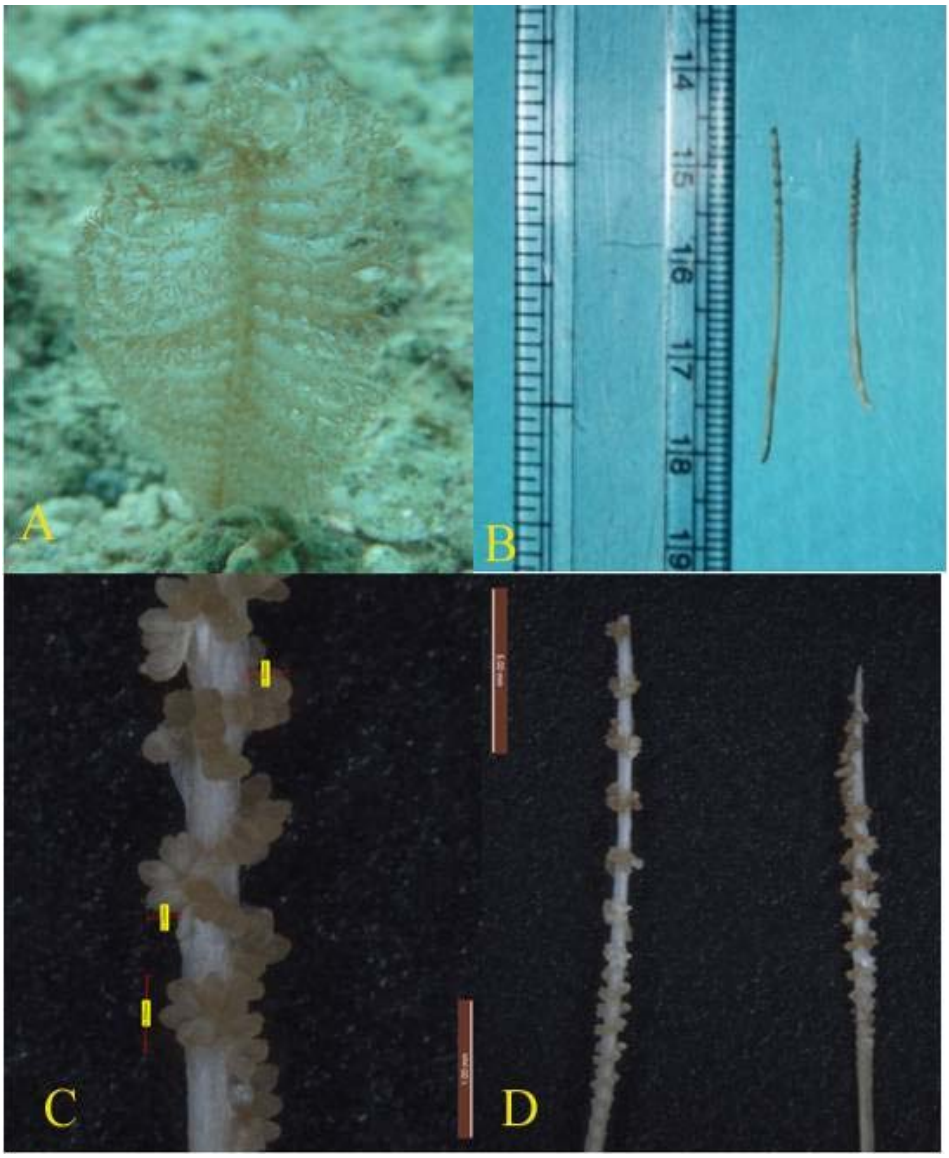

Figure-1: A – Live colony (5 cm), B- Preserved specimen (3.8 cm), C- Microscopic image of Polyps, D – Entire sample with siphonozoids and autozoids.

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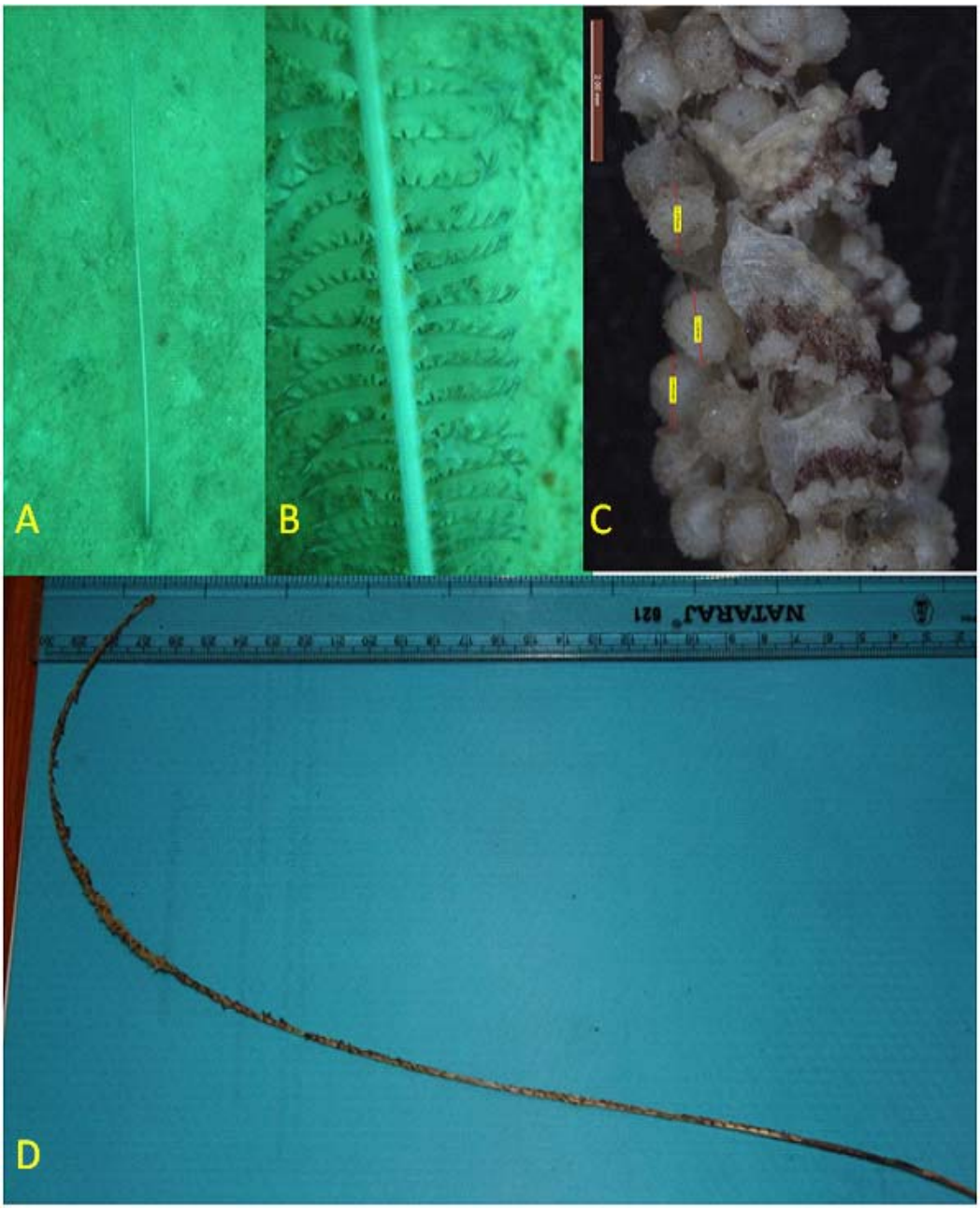

Figure-2: A - Live colony at natural condition, B - Siphonozoids and autozoids with exposed polyps, C- Autozoids, D- Preserved specimen (50 cm).

Cavernularia pusilla (Philippi, 1835)

Material Examined: ZSI/ANRC: 5577, Live colony height: 10 cm; width: 2-3cm; Depth: 15 meter; Grubh island, Mahatma Gandhi Marine National Park, South Andaman; sandy bottom with turbid water.

Description: Colony dirty white in colour when alive and preserved (Figure-1). Size of the colony is 10 cm height, 3 cm in head, 2cm in angering portion and rounded tip. The extended polyp's average size is 5 cm and 5 mm thick in underwater live condition.

Habitat: Lives embedded in muddy sands and sandy mud bottoms at 15m depth.

Distribution: East North Atlantic, European waters (ERMS scope), Greek Exclusive Economic Zone, Mediterranean Sea, Portuguese, Spanish, United Kingdom.

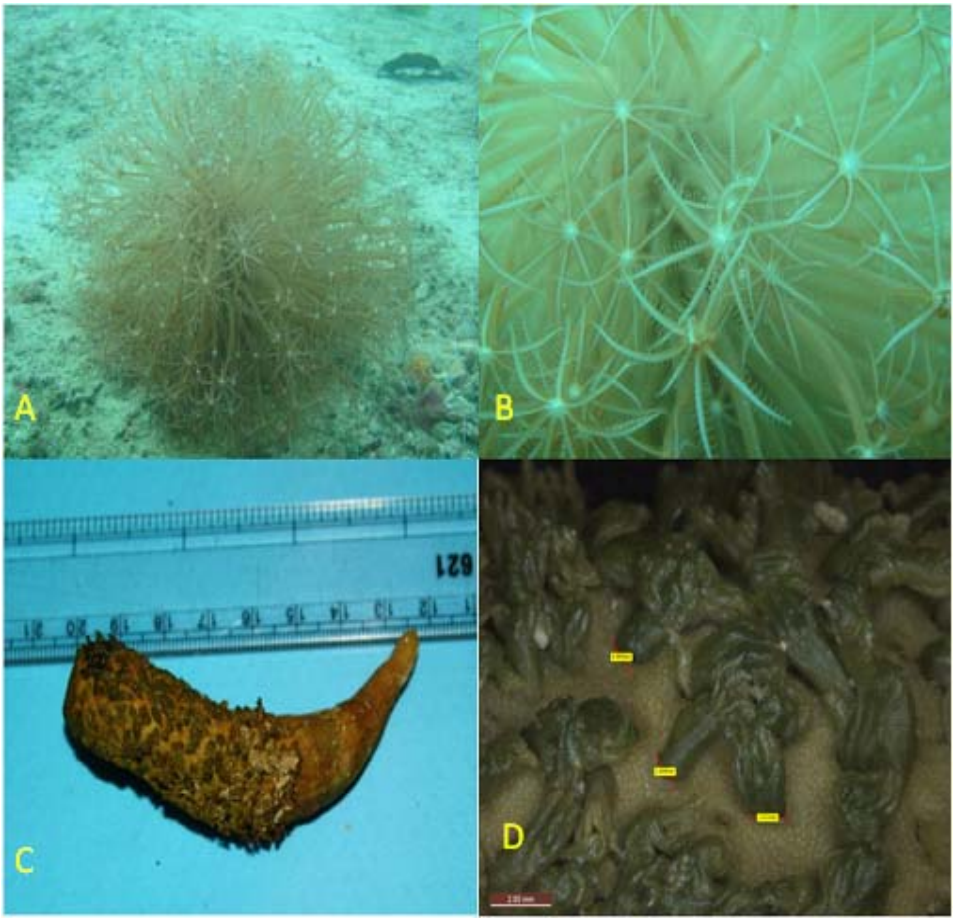

Figure-3: A - Live colony at natural condition, B - Exposed polyps, C - Preserved specimen (15 cm), D - Microscopic image of polyps.

DISCUSSION

In the present study, three species (*Virgularia gustaviana*, *Virgularia mirabilis and Cavernularia pusilla*) under three genera and three families were recorded for the first time from India and also in the Andaman and Nicobar Islands. These three species were reported previously from different regions of the world. *Virgularia gustaviana* from South Africa to Indonesia (Gosliner, 1996), *Virgularia mirabilis* from African coast and Scottish water, Scotland, UK (Orejas *et al*., 2002) and *Cavernularia pusilla* from west Africa (Morocco, Dollfus, 1938; Guinea, Ghana, Angola, Tixier-Durivault, 1963) and in the Basque coast (Altuna *et al*., 2006). A more extensive survey in deeper waters of Andaman and Nicobar Archipelago may reveal out several species under Pennatulacea.

ACKNOWLEDGEMENTS

The authors are thankful to the Department of Science & Technology, Science & Engineering Research Board for providing financial support and also thanks to the Ministry of Environment and Forests, Government of India for providing necessary permission for this study.

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